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10/070,927	08/05/2002	Richard Michael Gooch	2101/50764	4608

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EXAMINER

SETH, MANAV

ART UNIT

PAPER NUMBER

2625

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/070,927 ✓

Applicant(s)

GOOCH, RICHARD MICHAEL

Examiner

Manav Seth

Art Unit

2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08/05/2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08/05/2002.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. The specification of the instant invention do not recite required headers such as “Background of the invention”, “Brief summary of the invention”, “Brief description of the drawings”, “Detailed description of the disclosure” to differentiate between different body parts of the specification.
2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant’s use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase “Not Applicable” should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT

- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
- (1) Field of the Invention.
- (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

***Abstract***

3. The abstract of the disclosure is objected to because:

Abstract of the instant invention recites **figure 1** after the end of abstract body, which do not conform to US practice.

Examiner suggests the removal of “**figure 1**” after the end of abstract body, as a correction.

Correction is required. See MPEP § 608.01(b).

4. The second line of abstract recites “**he** method comprising the steps of.....”. Examiner suggests to change the word “**he**” to “**the**” in the second line of the abstract.

***Claim Objections***

5. The disclosure is objected to because of the following informalities: While there is no set statutory for claims, the present US Patent Office practice is to insist that each claim must be the object of a sentence starting with "I (or we) claim," "The invention claimed is" (or the equivalent). (See MPEP, 608.01 (m) IR-21 Form of Claims). Appropriate correction is required.

***Drawings***

6. The **drawing 2** is objected to because:

In the specification, line 8 of page 6 recites “referring to figure 2, a **workpiece 24** of the present....”. Figure 2 does not show numeral 24 assigned to workpiece. Appropriate correction is required.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-4 and 9-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Cosman, U.S. Patent No. 6,006,126.

**Claim 1** recites "A method of establishing the position of a target on an object, the method comprising the steps of: identifying one or more features associated with the object, the features being located at known positions on the object; applying a first target to the object; establishing a datum co-ordinate system for the object based on the determined location of the features associated with the object; and, measuring using optical measuring means the position of the first target on the object relative to the one or more features so as to determine the location of the target on the object". Cosman discloses a system and method for establishing or determining the position of a target on an object, where, **the target** (first target) being the point (or the position) on the object's surface where the probe touches, and, **object** being an human head (figure 8C; col. 6, lines 5-8 and lines 54-56; col. 12, lines 39-47; col. 15, lines 1-7; col. 15-40; col. 16, 20-30). Cosman further discloses establishing a data coordinate system for the object to determine the position of the first target (col. 6, lines 39-56; col. 14, lines 64-67 through col. 15, lines 1-15) and further teaches that **accuracy of coordinate system in terms of exact position (coordinates) of the first target (probe tip position) can be determined by using or identifying markers or fiducial points (other targets) on the surface of the object** as shown in figures 1 and 8C, where these fiducial points may be natural surface points (features associated with the object) such as the tip of the nose or the tip of the ears (col. 6, lines 57-65; col. 16, lines 10-20) and **inherently these natural surface points are at known positions of the object**. However, Cosman does teach these fiducial points (features) being located at known positions on the object (col. 7, lines 1-8). Cosman further discloses the use of a system (optical measuring means) which comprises of two cameras (4 and 5), digitizer

unit (CD), graphics data processor (DP), memory (M), image generator (IG) and display (D) which is used to measure the position of the first target on the object relative to the markers (features) on the object.

**Claim 2** recites “a method according to claim 1, wherein at least one of the one or more features is a second target applied to the object”. As discussed in the rejection of claim 1, fiducial markers (features) as used as other targets applied to the objects. Claim 2 has been similarly analyzed and rejected as per claim 1.

**Claim 3** recites “a method according to claim 2, wherein at least one of the one or more features is located in a close-tolerance location point on the object”. As discussed in the rejection of claim 1, Cosman discloses the use of **natural surface points such as tip of the ear** as the features associated with the object to be used in establishing the position of first target on the object. Cosman in view of the above disclosure, discloses in figure 8C, the first target (probe tip position) 814 positioned close to the ear tip, indicating at least one of the one or more features is located in a close-tolerance location point on the object.

**Claim 4** recites “a method according to claim 3, wherein the close-tolerance location point on the object is a hole”. As discussed in the rejection of claim 1, Cosman teaches that **accuracy of coordinate system in terms of exact position (coordinates) of the first target (probe tip position) can be determined by using or identifying markers or fiducial points (other targets) on the surface of the object** as shown in figures 1 and 8C. Cosman further discloses “the point 920 on the right side of the patient’s head may be located approximately centered above the



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ear or at the level of the auditory miatus or **opening of the ear** or ....." (figure 12A; col. 19, lines 45-49), where opening of the ear is a hole which is the close tolerance location point on the object.

**Claim 9** recites "a method according to claim 1, wherein the first target or more of the second targets are coded". Cosman as discussed before discloses of selecting points (targets), which have some degree of uniqueness (col. 16, lines 10-20). Cosman further teaches of using different colors for each point (target) to establish color-coded targets (col. 11, lines 59-67).

**Claim 10** recites "a method according to claim 1, wherein the first target or one or more of the second targets are retro-reflective". Cosman discloses "markers are provided by variety of structures including, light sources in various forms as **reflectors**, diodes ....." (Abstract).

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cosman, U.S. Patent No. 6,006,126.

**Claim 5** recites “a method according to claim 1, wherein at least one of the one or more features is located in a disposable or excess material portion of the object”. As discussed in the rejection of claims 1-4, fiducial points or features such as tip of the human ear, can be used as second target to determine the position of the first target on the object, where ear inherently is the excess bulging portion of the human body (object). Cosman further discloses that the operator may randomly select or establish these points over the surface anatomy (object’s surface) (col. 16, lines 10-15), from which it is clear that points (or targets) can be selected anywhere where the user wants. Cosman discloses a surgical method in which a hole is drilled in the person’s head (the head being the position area for the first target) and these points or markers (or targets) are used to properly establish the exact position of the probe tip that is used to perform the surgery (figure 4). Citing the above disclosure by Cosman, examiner, therefore, asserts that keeping in view of the intended use of Cosman’s invention in performing surgery (drilling hole) on the object surface with respect to the markers or other point targets, it would have been obvious for one of ordinary skill in the art at the time of invention was made to use Cosman’s invention in the application areas that require surgical operations such as drilling, removing, etc, regardless of the material the object is made of. However, examiner, keeping in view of the limitation of claim 5, acknowledges that ear is not a disposable portion of the person’s body (object) but is an excess part of the body, and Cosman, as discussed before, teaches that the points or targets can be selected or established randomly anywhere. Therefore, examiner asserts that if Cosman’s method is used by one of ordinary skill in the art on any other object rather than human body, keeping in view of the above Cosman’s inventive disclosure, the points (or targets) can be randomly selected on a excessive part of material, that is to be removed or disposed, however, the excessive part being apparently attached to the rest of the body, like the ear to the body, when the position of the first target is established on the object with

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respect to the feature on the excessive portion and would not make any difference if removed after position of first target is determined.

**Claim 6** recites “a method according to claim 5, further comprising the step of removing at least a part of the disposable or excess material portion of the object, the removed part comprising the at least one of the one or more features”. As discussed in the rejection of claim 5, keeping in view of the Cosman’s inventive disclosure, examiner asserts that if Cosman’s method is used by one of ordinary skill in the art on any other object rather than human body, the points (or targets) can be randomly selected on a excessive part of material, that is to be removed or disposed, however, the excessive part being apparently attached to the rest of the body, like the ear to the body, when the position of the first target is established on the object with respect to the feature on the excessive portion and would not make any difference if removed after position of first target is determined

**Claim 7** recites “a method according to claim 1, wherein the step of applying a first target comprises applying the first target comprises applying the first target to approximate location on the object”. As discussed in the rejections of claims 1-5, Cosman discloses the teachings of establishing the position of the probe tip on surface of the object using markers or fiducial points, the object being the human body, which is a part of surgical operation. As well known, if the surgical operation such as drilling is to be performed on the surface of object, an approximate position or target has to be established and marked with a marker as a first position according to the reason why and where such a operation is required, therefore, it would be obvious for a person of ordinary skill in the art at the time of invention was made to approximate location on the object.

Claim 8 recites "a method according to claim 7, wherein the first target is self-adhesive". As discussed Cosman discloses the use of markers on the patient's body and the use of self-adhesive markers is very well known in many applications such as skin marker for marking portal areas of patients, electrocardiogram, and other various applications.

### *Conclusion*

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Wakashiro et al., U.S. Patent No. 6,628,803, discloses a device for calculating positional data of standard points of photogrammetric target..
- Nowacki et al., U.S. Patent No. 5,295,483, discloses a method and apparatus for locating target in human body.
- Pettersen et al., U.S. Patent No. 5,440,392, discloses a method and system for point by point measurement of spatial coordinates.
- DiMatteo et al., U.S. Patent No. 4,396,945, discloses a method of sensing the position and orientation of elements in space.
- Heilbrum et al., U.S. Patent No. 6,146,390, discloses an apparatus and method for photogrammetric surgical localization.
- Bova et al., U.S. Patent No. 5,954,647, discloses a marker system and related stereotactic procedure.
- Callahan, U.S. Patent No. 4,235,459, discloses a marker system.

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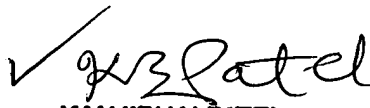
- Zinreich et al., U.S. Patent No. 5,407,440, discloses a radiation therapy skin marker system.
- Bridges et al., U.S. Patent No. 5,861,956, discloses a retroreflector for use with tooling ball.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manav Seth whose telephone number is (571) 272-7456. The examiner can normally be reached on Monday to Friday from 8:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bhavesh Mehta, can be reached on (571) 272-7453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manav Seth  
Art Unit 2625  
June 25, 2005

  
**KANUBHAI PATEL**  
**PRIMARY EXAMINER**